

DAILY MATHS (20 marks) (P1 + P2)

✓1- UNIT CONVERSION

✓2- RATIO

✓3- CURRENCY CONVERSION

✓4- PIE CHARTS

✓5- MAPS & SCALES

✓6- PERCENTAGES

✓7- INTEREST (SIMPLE & COMPOUND)

Exponential growth and decay.

(115)	{	DAILY MATHS (20)
		STATISTICS (25)
		GRAPHICAL (10)
		TRIGON. (20)
		MENSUR. (20)
		ALGEBRA (20)

UNIT CONVERSION

Length mm $\xrightarrow{10}$ cm $\xrightarrow{100}$ m $\xrightarrow{1000}$ km

Mass g $\xrightarrow{1000}$ kg $\xrightarrow{1000}$ tons

Volume ml or cm³ $\xrightarrow{1000}$ litres $\xrightarrow{1000}$ m³

Time sec $\xrightarrow{60}$ min $\xrightarrow{60}$ hours

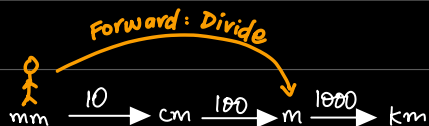
RULE:

Forward ÷

Backward ×

Basic

Convert 40000 mm to m



$$\frac{40000}{1000} = 40\text{m}$$

ADVANCED

1) 20000 cm² → m²

Rule: Divide by 100



$$\frac{20000}{(100)(100)} = 2\text{m}^2$$

2) 0.0002 m² → mm²

Rule: multiply by 1000

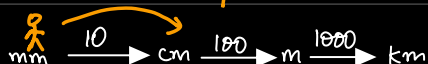


$$0.0002 \times 1000 \times 1000$$

$$\frac{2}{10000} \times 1000 \times 1000 = 200\text{mm}^2$$

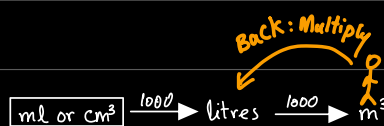
3) 20000 mm³ → cm³

Rule: Divide by 10



$$\frac{20000}{(10)(10)(10)} = 20\text{cm}^3$$

Convert 0.03 m³ to litre



$$0.03 \times 1000$$

$$\frac{3}{100} \times 1000 = 30\text{ Litres}$$

Step 1: Ignore power and then develop rule.

Step 2: Apply the rule as many times as power.

Daily Maths (10)
Vectors (5)

→ This will help us in

RATIOS

Q. Express 20cm as a ratio of 4m. (1mark)

~~20:4~~ You cannot take ratio if units are not same.

20cm

4m

$\times 100$

400cm

20 : 400

$$\frac{\cancel{20}}{\cancel{20}400} = \frac{1}{20} = \boxed{1:20}$$

Note: Workings are a lot easier if we go to smaller units

Q. In a class boys to girls ratio is $\overset{B:G}{3:4}$.

If there are 12 girls, how many boys are there.

(1mark)

	(RATIO)	
	PARTS	ACTUAL
GIVEN: GIRLS	4	12
FIND: BOYS	3	x

$$4x = 12 \times 3$$

$$x = \frac{12 \times 3}{4}$$

$$x = 9 \text{ boys.}$$

$\overset{B:G}{3:4}$

Boys = 3 parts

Girls = 4 parts

Total = 7 parts

Diff = 1 part

Q: In a class boys to girls ratio is 5:7. If there are 20 boys, how many total students take class. (1 mark)

	(RATIO)	
	PARTS	ACTUAL
GIVEN: BOYS	5	20
FIND: TOTAL	12	x

$$5x = 20 \times 12$$

$$x = \frac{20^4}{5} \times 12$$

$$x = 48 \text{ total students.}$$

B:G
5:7

Boys = 5 parts
Girls = 7 parts
Total = 12 parts
Diff = 2 parts

Q: In a class boys to girls ratio is 6:5. If there are 7 more boys than girls, how many girls are there (1 mark)

	PARTS	ACTUAL
GIVEN: DIFF	1	7
FIND: GIRLS	5	x

$$x = 7 \times 5$$

$$x = 35 \text{ girls}$$

B:G
6:5

Boys: 6 parts
Girls: 5 parts
Total = 11 parts
Diff = 1 part

Difference: More, Bigger, Higher, Longer, greater, Less, Smaller, Lower, Shorter, Lesser.

Q: In a class boys to girls ratio is 3:5 ^{B:G}
 If there are 12 ^{Difference} more girls than boys,
 how many total students are there (1 mark)

	(Ratio)	
	PARTS	ACTUAL
GIVEN: DIFF	2	12
FIND: TOTAL	8	x

$$2x = 12 \times 8$$

$$x = \frac{12 \times 8}{2}$$

$$x = 48 \text{ total students.}$$

Total = 8 parts
 Diff = 2 parts.

- 41 (a) Some money is shared between Ali, Ben and Carl in the ratio ^A5 : ^B3 : ^C2. Total = 10 parts.
 Ben receives \$60.

How ^{TOTAL} much money is shared?

	PARTS	ACTUAL
GIVEN: Ben	3	60
FIND: TOTAL	10	x

$$3x = 10 \times 60$$

$$x = \frac{10 \times 60}{3}$$

$$x = 200$$

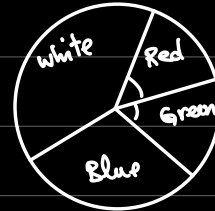
Answer \$ [1]



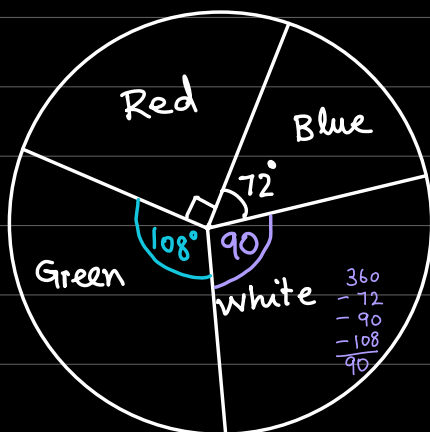
PIE CHARTS

~~$$\text{Angle} = \frac{x}{\text{Total}} \times 360$$~~

	ANGLE	
	PARTS	ACTUAL
GIVEN:		
FIND:		



Memorize: TOTAL ANGLE = 360°



Q: Colours of cars in a parking lot were recorded and a pie chart was constructed. Given that there are 12 blue cars.

(i) Find Total cars in parking lot

	ANGLE	
	PARTS	ACTUAL
GIVEN: Blue	72	12
FIND: TOTAL	360	x

$$72x = 12 \times 360$$

$$x = \frac{12 \times 360}{72}$$

$$x = 60 \text{ Total Cars}$$

(ii) Given that 18 green cars are there, find angle for green cars on pie chart.

	ANGLE PARTS	ACTUAL	
GIVEN: Blue	72	12	
FIND: Green	x	18	

$$12x = 18 \times 72$$

$$x = \frac{18 \times 72}{12} = 108$$

$$x = 108^\circ$$

(iii) Find number of white cars.

	ANGLE PARTS	ACTUAL
GIVEN: Blue	72	12
FIND: White	90	x

$$72x = 12 \times 90$$

$$x = \frac{1 + 2 \times 90}{7261}^{15}$$

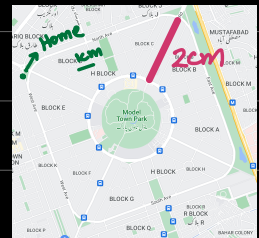
$x = 15$ white cars.

Diagram to scale

You can use ruler and protractor (D) on this Question.

MAPS & SCALES

On a map 2cm represents 5km



(i) Express this scale in the form $1:n$ (1mark)

STEP 1: BRING EVERYTHING TO cm

STEP 2: DIVIDE AND SIMPLIFY RATIO

2cm

5 Km

$\times 100000$

50000 cm

$$\frac{\text{MAP}}{\text{ACTUAL}} = \frac{2^1}{500000} = \frac{1}{250000} = \boxed{\frac{1:250000}{1:n}}$$

Do not use
this scale in
next parts

use the original
scale of
question.

- (ii) On the map two cities are 40 cm apart.
Find distance between both cities in km.

LENGTH	MAP PARTS	ACTUAL
GIVEN: SCALE	2 cm	5 km
FIND: CITIES	40 cm	x km

$$2x = 5 \times 40$$

$$x = \frac{5 \times 40}{2}$$

$$x = 100 \text{ km}$$

Note 1: Units should be same vertically in each column.

Note 2: While you cross multiply, do not write units along. It will confuse you.

- (iii) On the map a lake has area 8 cm^2 . Find its actual area in km^2 .

LENGTH SCALE: 2 cm $\longrightarrow$ 5 km

SQUARE EVERYTHING TO CONVERT TO SCALE FOR AREA

AREA SCALE: $4 \text{ cm}^2 \longrightarrow 25 \text{ km}^2$

AREA	MAP PARTS	ACTUAL
GIVEN: SCALE	4 cm^2	25 km^2
FIND: Lake	8 cm^2	x km^2

$$4x = 25 \times 8$$

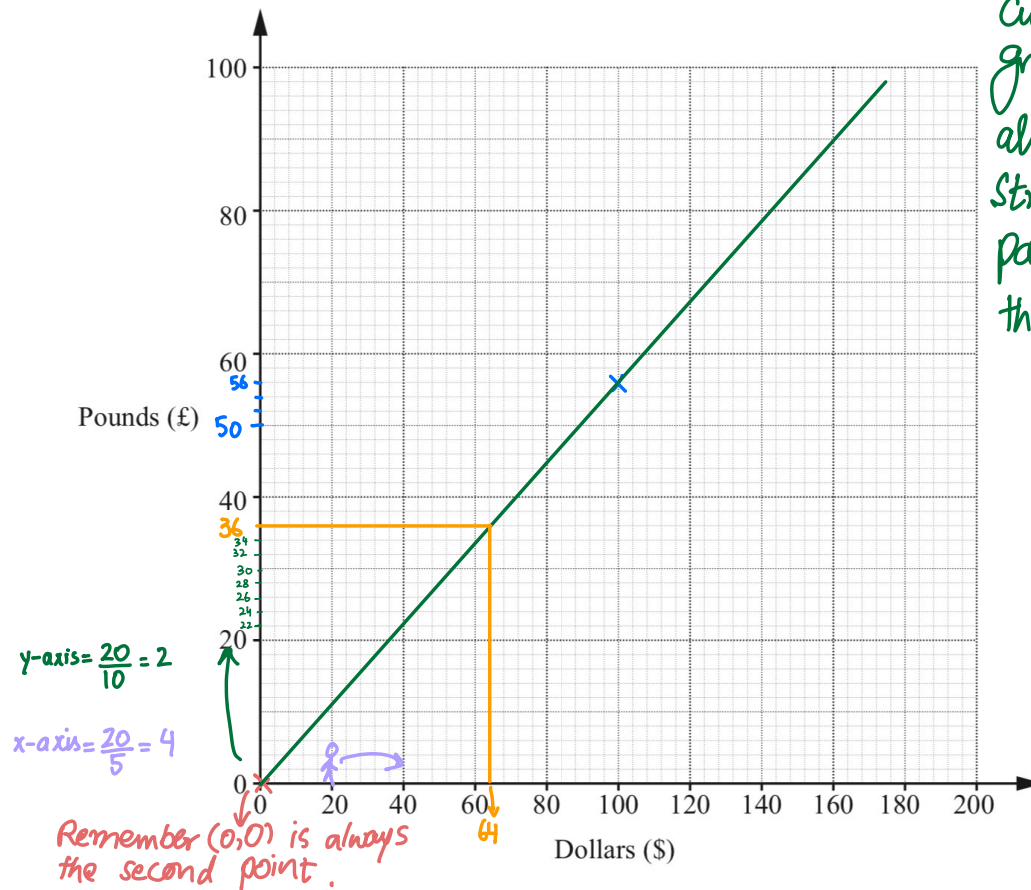
$$x = \frac{25 \times 8}{4}$$

$$x = 50 \text{ km}^2$$

CURRENCY CONVERSION

It is given that 100 dollars (\$) is equivalent to 56 pounds (£).

- (a) Use this information to draw a conversion graph between pounds and dollars on the grid below.



Currency graphs are always straight lines passing through (0,0)

- (b) Use your graph to convert \$64 to pounds.

Answer £ [1]

36

on graph : 1 small box = $\frac{\text{Jump in value}}{\text{Jump in boxes}}$

Q.

$$£1 = \$3$$

$$£1 = \text{PKR } 180$$

(i) Ali converts 80 dollars to pounds, how many pounds will he get?

$$\begin{array}{ccc} £1 & = & \$3 \\ x & \times & 80 \end{array}$$

$$3x = 80$$

$$x = \frac{80}{3}$$

$$x = 26.667 \text{ pounds.}$$

(ii) Ali converts 5 pounds to rupees. How many rupees will he get?

$$\begin{array}{ccc} £1 & = & \text{PKR } 180 \\ 5 & \times & x \end{array}$$

$$x = 5 \times 180$$

$$x = 900 \text{ rupees.}$$

(iii) Ali converts 3600 rupees to dollars. How many dollars will he get. (1 mark)

$$£1 = \$3$$

$$£1 = \text{PKR } 180$$



$$\$3 = \text{PKR } 180$$

$$\begin{array}{ccc} \$3 & \times & 3600 \\ x & & \end{array}$$

$$180x = 3 \times 3600$$

$$x = \frac{3 \times 3600}{180}$$

$$x = 60 \text{ dollars.}$$

WHAT IF LEFT SIDES ARE NOT SAME!

$$£3 = \$60$$

$$£2 = \text{PKR } 400$$

$$\frac{£3}{3} = \frac{\$60}{3}$$

$$\frac{£2}{2} = \frac{\text{PKR } 400}{2}$$

$$£1 = \$20$$

$$£1 = \text{PKR } 200$$

Now left hand side is equal

$$\$20 = \text{PKR } 200$$

PERCENTAGES

$$\frac{40}{50}$$

$$\text{Percentage marks} = \frac{\text{obtained marks}}{\text{Total marks}} \times 100 = \frac{40}{50} \times 100 = 80\%$$

$$\frac{42}{50}$$

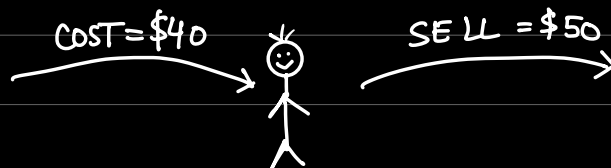
$$\text{Percentage increase} = \frac{\text{increase}}{\text{original (old)}} \times 100 = \frac{2}{40} \times 100 = 5\%$$

$$\frac{39}{50}$$

$$\text{Percentage decrease} = \frac{\text{decrease}}{\text{original (old)}} \times 100 = \frac{1}{40} \times 100 = 2.5\%$$

BUYING / SELLING

1



$$\text{Profit} = 10$$

$$\text{Percentage Profit} = \frac{\text{Profit}}{\text{original (old)}} \times 100 = \frac{10}{40} \times 100 = 25\%$$

2



$$\text{Loss} = \$5$$

$$\text{Percentage Loss} = \frac{\text{Loss}}{\text{original (old)}} \times 100 = \frac{5}{40} \times 100 = 12.5\%$$

✓

Original (old)

40

3



→ Before discount:

MARKED
PRICE

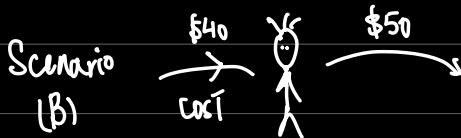
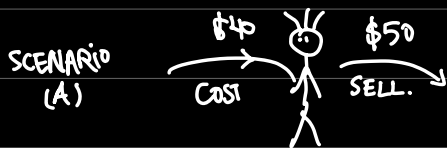
LIST
PRICE

→ After Discount:

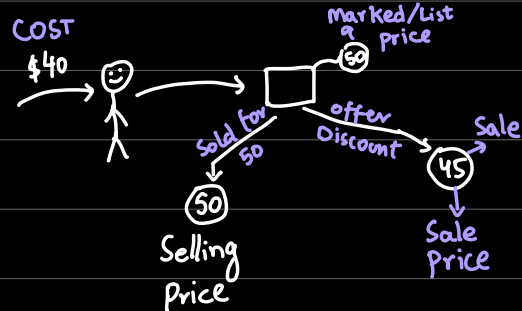
SALE
PRICE

Discount = \$ 30

$$\text{Percentage Discount} = \frac{\text{Discount}}{\text{original (old)}} \times 100 = \frac{30}{180} \times 100 = 16.667\%$$



~~50~~
48



SAVINGS

Income : 4000
Rent : 1000
Food : 300
Travel : 700

Total expenditure = 2000

$$\text{Savings} = 4000 - 2000 = \$ 2000$$

He saves the rest.

Find percentage savings? $\% \text{ savings} = \frac{\text{savings}}{\text{orig (old)}} \times 100$

$$= \frac{2000}{4000} \times 100 = 50\%$$



use formula.

$$\% \square = \frac{\square}{\text{original (old)}} \times 100$$

	Before	After
%	100	

Q. In a city population was 80000 in 2012. It rose by 20% in 2018. Find population in 2018.

	Before	After
	2012	2018
%	100 $\xrightarrow{+20}$ 120	
population	80000	x

$$100x = 120 \times 80000$$

$$x = \frac{120 \times 80000}{100}$$

$$x = 96000$$

Q. In a city population was 65000 in 2015. It was 30% more than population in 2014. Find population in 2014.

	Before	After
	2014	2015
%	100 $\xrightarrow{+30}$ 130	
population	x	65000

$$130x = 65000 \times 100$$

$$x = \frac{65000 \times 100}{130}$$

$$x = 50000$$

Q: A shopkeeper buys an item for \$50, keeps a profit of 10% and sells it. Find the selling price.

	Before	After
	COST	SELL
%	100	110
\$	50	x



$$100x = 110 \times 50$$

$$x = \frac{110 \times 50}{100}$$

$$x = 55$$

Q: In a sale everything is 10% off.
An item has sale price of \$18,
Find its marked price.

	Before	After
	MARKED	SALE
%	100	90
\$	x	18

$$90x = 100 \times 18$$

$$x = \frac{100 \times 18}{90}$$

$$x = 20$$



Tax is charged at 10%

↓

Does not tell ADD/SUB.
This word only tells the
% decided by Govt for Tax.

↑

- (b) Tax on the original price of a radio is charged at 20% of the original price. After tax was included, a customer paid \$60 for the radio.

Calculate the tax charged.

	Before	After
%	100	120
\$	x	60

$$120x = 60 \times 100$$

$$x = \frac{60 \times 100}{120}$$

$$x = 50$$

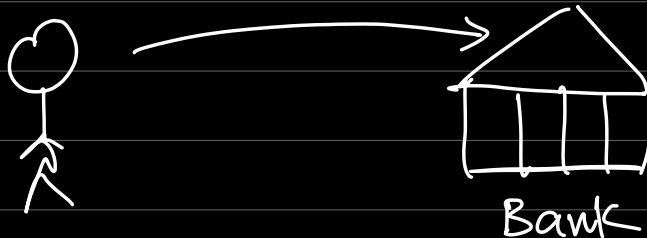
$$\begin{array}{r} 60 \\ - 50 \\ \hline \text{Tax} = 10 \end{array}$$

Answer \$ 10 [2]

INTEREST

HARAM HOTA HAI!

\$1000



population grow
Nuclear Decay.

SIMPLE
INTEREST
BANK A = 10%

Today = \$ 1000 $(1000 \times 10\% = 100)$
+ 100 $\leftarrow 1000 \times \frac{10}{100} = \100
Year 1 \$ 1100
+ 100
Year 2 \$ 1200
+ 100
Year 3 \$ 1300

COMPOUND
INTEREST
BANK B = 10%

Today = \$ 1000 $(1000 \times 10\% = \$100)$
+ 100
Year 1 = 1100 $(1100 \times 10\% = 110)$
+ 110
Year 2 = 1210 $(1210 \times 10\% = 121)$
+ 121
Year 3 = \$1331

INTEREST HARAM HOTA HAY!

SIMPLE INTEREST

$$I = \frac{PRT}{100}$$

TYPE 1: STARTING AMOUNT AND INTEREST RATE GIVEN

$$\left[\begin{array}{c} \text{STARTING} \\ \text{AMOUNT} \end{array} \right] \times \left[\begin{array}{c} \text{PERCENTAGE} \\ \text{INTEREST} \end{array} \right] = \left[\begin{array}{c} \text{INTEREST} \\ \text{FOR ONE COMPLETE} \\ \text{YEAR.} \end{array} \right]$$

STARTING AMOUNT Interest Rate

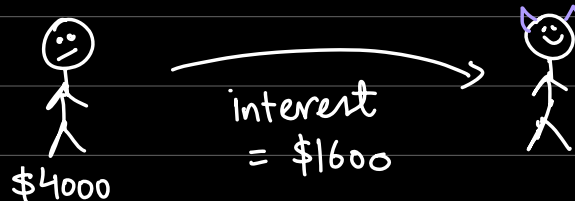
Q Ali invests \$4000 in a bank at 10% simple interest for 4 years. Find.

(i) Total amount of interest earned in 4 years.

$$4000 \times 10\% = 4000 \times \frac{10}{100} = \$400 \text{ interest for one year.}$$

$$\text{Total Interest in 4 year} = \$1600$$

(ii) His final bank balance at end of 4 years



$$\text{New bank balance} = 4000 + 1600 = \$5600$$

Q Ali invests \$600 in a bank at 20% simple interest for 8 months. Find the interest earned in 8 months.

$$600 \times 20\% = \cancel{600} \times \frac{20}{\cancel{100}} = \$120 \text{ interest for } \overset{12 \text{ months}}{1 \text{ year}}$$

Months	Interest
12	120
8	x

$$12x = 120 \times 8$$

$$x = \frac{120 \times 8}{12}$$

$$x = \$80 \text{ interest in } 8 \text{ months.}$$

TYPE 2: STARTING AMOUNT MISSING. (3 Marks)

SIR ZAIN'S FAV BOXES.

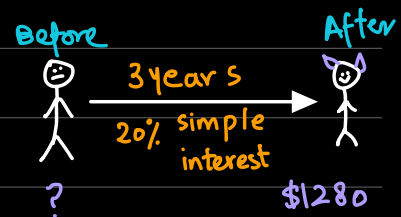
Q Ali invested some amount in a bank at 20% Simple interest. Given that he had \$1280 at end of three years, find the starting amount he invested.

	Before	After
%	100	160
\$	x	1280

$$160\% = 100 \times 1280$$

$$x = \frac{100 \times 1280}{160}$$

$$x = \$800$$



Note: Percentage interest rate is for ONE YEAR.

In box for percentage we add rate as many times as number of years
e.g. we added 20% three times because of 3 years.

TYPE 3: INTEREST RATE MISSING:

Q Ali invests \$800 in a bank at simple interest. His final bank balance after 2 years is \$1120. Find the percentage simple interest.



$$\text{Interest} = 1120 - 800 = \$320 \text{ for 2 years.}$$

$$\div 2 \text{ year}$$

$$\text{Interest for 1 year} = 160$$

$$\text{Percentage interest} = \frac{\text{interest for 1 year}}{\text{original (old)}} \times 100 = \frac{160}{800} \times 100 = 20\%$$

COMPOUND INTEREST (Mostly comes with calculator).

$$F = P \left(1 + \frac{r}{100} \right)^n$$

↓ ↓ ↑ n → no. of years.

Final value Present value (starting amount)

$$F = P \left(1 + \frac{r}{100} \right)^n$$

THIS FORMULA IS USED:

- 1- COMPOUND INTEREST
- 2- EXPONENTIAL GROWTH.
AND DECAY

Q. Ali invests $\overset{P}{\$4000}$ in a bank at $\overset{n}{10\%}$ compound interest for $\overset{n}{4}$ years.
Find:

(i) $\overset{F}{\text{Final bank balance}}$ at end of 4 years

$$F = P \left(1 + \frac{r}{100} \right)^n$$

$$F = 4000 \left(1 + \frac{10}{100} \right)^4$$

$$F = 5856.4$$

4000	(4000 x 10% = 400)
+ 400	
4400	(4400 x 10% = 440)
+ 440	
4840	(4840 x 10% = 484)
+ 484	
5324	(5324 x 10% = 532.4)
+ 532.4	
5856.4	

(ii) Total interest earned in 4 years.



$$\text{Interest} = 5856.4 - 4000 = 1856.4$$

Q: Population of Bacteria in a field is decreasing by 4% per annum. It is given that population is 200000 at start. Find population after 5 years.

$$F = P \left(1 - \frac{r}{100} \right)^n$$

$$F = 200000 \left(1 - \frac{4}{100} \right)^5$$

$$F = 163074.539$$

iii) After how many years will population be less than half of starting population.

$$F = 200000 \left(1 - \frac{4}{100} \right)^9 = 138506.9$$

$$F = 200000 \left(1 - \frac{4}{100} \right)^{16} = 104080.58$$

$$F = 200000 \left(1 - \frac{4}{100} \right)^{17} = 99917$$

After 17 years, population is less than half.

COPY NOTES TILL HERE.

- 2 The number of hours worked each day by Adam and Brenda is shown in the table.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Adam	7	5	8	9	8	0
Brenda	0	8	9	9	7	5

The number of hours for which they are paid is calculated in the following way.
On each of days 1 to 5, every hour worked after the first 7 hours is counted as $1\frac{1}{2}$ hours.
On day 6, every hour worked is counted as 2 hours.

- (a) Calculate the **total** number of hours for which Adam was paid.
- (b) The rate of pay is \$14.50 per hour.
How much did Brenda earn on day 6?

Hire purchase (1000)

Down payment (deposit) \$400

10 Equal installments \$600

$\div 10$

\$60

Tractor ordering cost = \$10
 per day = \$5

Per day = \$5

Wed Thu Fri — Mon Tue $10 + 5(3) \quad + \quad 10 + 5(2)$ $10 + 15 \quad + \quad 10 + 10$ $\$45$	Wed ————— Tue $10 + 5(7)$ $10 + 35$ $\$45$
---	---

Topics	Pt Sheets
1- Arithmetic	(6)
2- Ratios Map, Currency, Pie Ratio, Unit.	(4)
3- Percentages Percentage, Interest.	(4)
4- Simultaneous Eq	(3)
5- Proportionality	(4)
6- Factorization	(4)
5- Indices	(4)
6- Significant Fig	(2)
7- Standard Form	(4)
8- HCF/LCM	(2)

25Q/day
small (P1)

First time = 50%

Second time = 90%

- 5 (a) One day the rate of exchange between pounds (£) and United States dollars (\$) was £1 = \$1.65. On the same day, the rate of exchange between pounds (£) and euros was £1 = 1.44 euros.
- (i) Alan changed £500 into dollars.
Calculate how many dollars he received. [1]
- (ii) Brenda changed 900 euros into pounds.
Calculate how many pounds she received. [1]
- (iii) Clare changed \$792 into euros.
Calculate how many euros she received. [2]
- (b) The cost of manufacturing a television was \$15 000.
- (i) It was sold to a wholesaler at a profit of 8% of the cost.
Calculate the price the wholesaler paid for the television. [1]
- (ii) The wholesaler sold the television to a shop at a profit of 8% of the price he paid for it.
The shop then sold the television to John at a profit of 8% of the price it paid.
Calculate how much the television cost John. [2]
- (iii) Calculate the percentage increase in the cost of the television from its manufacture till John owns it. [2]
- (c) The shop sold a Home Entertainment system to Leslie for \$46 480. The shop made a profit of 12% on the price it paid for the system.
Calculate how much the shop paid for the system. [2]

© UCLES 2006

4024/02/O/N/06

$$£1 = \$1.65$$

$$£1 = 1.44 \text{ euros.}$$

- (i) Alan changed £500 into dollars.
Calculate how many dollars he received. [1]

$$£1 = \$1.65$$

$$500 = x$$

$$x = 500 \times 1.65$$

$$x = 825$$

- (ii) Brenda changed 900 euros into pounds.
Calculate how many pounds she received. [1]

$$£1 = 1.44 \text{ euros.}$$

$$x = 900$$

$$1.44x = 900$$

$$x = \frac{900}{1.44}$$

$$x = 625$$

- (iii) Clare changed \$792 into euros.
Calculate how many euros she received.

[2]

$$£1 = \$1.65$$

$$£1 = 1.44 \text{ euros.}$$

$$\begin{array}{l} \$1.65 = 1.44 \text{ euros} \\ 792 \times x \end{array}$$

$$1.65x = 1.44 \times 792$$

$$x = \frac{1.44 \times 792}{1.65}$$

$$x = 691.2$$

- (b) The cost of manufacturing a television was \$15 000.

- (i) It was sold to a wholesaler at a profit of 8% of the cost.
Calculate the price the wholesaler paid for the television.

[1]

	Before	After
	M	W
%	100	→ 108
\$	15000	x

$$100x = 108 \times 15000$$

$$x = \frac{108 \times 15000}{100}$$

$$x = 16200$$

- (ii) The wholesaler sold the television to a shop at a profit of 8% of the price he paid for it.
The shop then sold the television to John at a profit of 8% of the price it paid.
Calculate how much the television cost John.

[2]

	Before	After
	W	S
%	100	→ 108
\$	16200	x

	Before	After
	S	J
%	100	→ 108
\$	17496	x

$$100x = 108 \times 16200$$

$$x = 108 \times 16200$$

$$100x = 108 \times 17496$$

$$x = 108 \times 17496$$

$$\frac{100}{x} = 17496$$

$$\frac{100}{x} = 18895.68$$

(iii) Calculate the percentage increase in the cost of the television from its manufacture till John owns it.

15000 18895.68 [2]

$$\begin{array}{ccc} M & \longrightarrow & J \\ 15000 & & 18895.68 \end{array}$$

$$\text{increase} = 3895.68$$

$$\begin{aligned} \% \text{ inc} &= \frac{\text{inc}}{\text{orig (old)}} \times 100 = \frac{3895.68}{15000} \times 100 \\ &= 25.9712 \end{aligned}$$

(c) The shop sold a Home Entertainment system to Leslie for \$46480. The shop made a profit of 12% on the price it paid for the system.

Calculate how much the shop paid for the system.

[2]

	Before	After
	COST	SELL
%	100	→ 112
\$	x	46480

$$112x = 100 \times 46480$$

$$x = \frac{100 \times 46480}{112}$$

$$x = 41500$$

- 14 (a) Sarah bought some soup, apples and mushrooms from her local shop.
The table shows some of the amounts and prices.

Items	Price (\$)	cents
p cans of soup at <u>90 cents per can</u>	6.30	$630 \quad \frac{630}{90} = 7 \text{ cans}$
1.5 kilograms of apples at $\$q$ per kilogram	4.35	$435 \quad \frac{435}{1.5} = 2.9$
r kilograms of mushrooms at \$6.40 per kilogram	1.60	$160 \quad \frac{1.6}{6.4} = 0.25$

- (i) Find the values of p , q and r . $p=7$ $q=2.9$ $r=0.25$ [2]
- (ii) Sarah gives the shopkeeper \$20.00 to pay for all these items.

How much change does she receive? $20 - 6.30 - 4.35 - 1.60 = 7.75$ [1]

(b)

Washing Machine \$980	Finance offer Pay a 20% deposit and 24 monthly payments of \$36 each
---	---

Lavin decides to buy this washing machine.

How much more would it cost Lavin if he paid for the washing machine using the finance offer instead of paying the \$980 immediately? [2]

- (c) Asif deposits \$650 into a bank paying simple interest.
He leaves the money there for 5 years.
At the end of the 5 years, the amount in the bank is \$763.75.

Calculate the percentage rate of interest the bank paid per year. [3]

$$(b) \text{ Deposit (20\%)} = 980 \times 20\% = 980 \times \frac{20}{100} = 196$$

$$\text{Installments Total} = 24 \times 36 = 864$$

$$\text{Total amount paid} = 1060$$

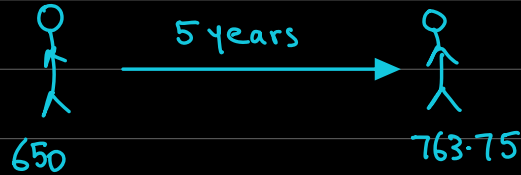
$$\text{Actual Price} = 980$$

$$= 80$$

- (c) Asif deposits \$650 into a bank paying simple interest.
He leaves the money there for 5 years.
At the end of the 5 years, the amount in the bank is \$763.75.

^{Type 3}
Calculate the percentage rate of interest the bank paid per year.

[3]



$$\text{Total interest for 5 years} = 763.75 - 650 = 113.75$$

$\div 5 \text{ years}$

$$\text{Interest for one complete year} = 22.75$$

$$\% \text{ interest} = \frac{\text{interest for one year}}{\text{original (old)}} \times 100 = \frac{22.75}{650} \times 100 = 3.5\%$$

- 16 (a) Ahmed's internet provider offers two payment schemes.

Scheme A : \$30 per month for unlimited use.

Scheme B : \$0.05 per minute on weekdays and \$0.03 per minute at the weekend.

Each month Ahmed uses the internet for a total of $5\frac{1}{4}$ hours at the weekday rate and a total of 12 hours at the weekend rate.

Find the cost per month, in dollars, for Scheme B and decide which payment scheme is cheaper.

$$\text{Scheme B: Weekday usage} = 5\frac{1}{4} \times 60 = 315 \text{ mins} \times 0.05 = \$15.75$$

$$\text{Weekend} = 12 \times 60 = 720 \text{ min} \times 0.03 = \$21.60$$

$$\text{Total for Scheme B} = 37.35$$

Answer Scheme B costs \$ 37.35

Scheme A is cheaper [2]

- (b) Ahmed's printer can use large or small black cartridges.

A large cartridge costs \$48.50 and prints 1000 pages.

A small cartridge prints 650 pages.

2 small cartridges cost \$65.

- (i) Find the cost per page in dollars, if Ahmed buys 2 small cartridges.

$$\frac{\text{cost}}{\text{pages}} = \frac{\$65}{1300 \text{ pages}} = \$0.05 \text{ per page.}$$

Answer \$ 0.05 [1]

- (ii) Is it cheaper per page for Ahmed to buy 2 small cartridges or a large cartridge?

Show your working.

$$\text{for large: } \frac{\text{cost}}{\text{pages}} = \frac{48.50}{1000} = \$0.0485 \text{ per page.}$$

$$0.0500$$

Cheaper to buy large cartridge.

[1]

Weekend Marathon

(P2) Daily Maths
(A21)

Youtube (3-4 hours)

Complete worksheet.

0 Levels + 1 GCSE

Don't tell yourself
these 2 lies!

- 1) I will take this marathon later.
- 2) I will solve after marathon -